Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

What is claimed is:

1. (original) A method for estimating an image illuminant, the method comprising:

forming an illuminant set comprising data describing a plurality of candidate illuminants;

analyzing an image in relation to said plurality of candidate illuminants to determine a plurality of match scores for said plurality of candidate illuminants;

fitting a surface to said plurality of match scores, said surface representing illuminant values other than said candidate illuminants; and

determining a point on said surface, said point corresponding to the data representing a likely illuminant for said image.

2. (original) A method as described in claim 1 wherein said illuminant set is a design matrix for a predetermined set of illuminants.

3. (canceled)

4. (original) A method as described in claim 1 wherein said analyzing comprises forming an image histogram of image element color coordinates relative to color coordinate distributions under said candidate illuminants.

5. (original) A method as described in claim 1 wherein said fitting a surface comprises a best-fit least squares method.

6. (original) A method as described in claim 1 wherein said fitting a surface comprises taking a weighted average of the match scores of the candidate illuminants.

7. (original) A method as described in claim 1 wherein said determining a point on said surface comprises locating surface extremum.

8. (original) A method as described in claim 7 wherein said method of locating said surface extremum comprises forming derivatives of said surface and setting them equal to zero to locate surface extremum.

9. (currently amended) A method as described in claim 1 wherein said determining a point on said surface comprises solving for the color coordinates of an ~~extrema~~ extremum on said surface and,

choosing the point of the ~~extrema~~ extremum when the coordinates of said ~~extrema~~ extremum are closer to ~~the~~ reference illuminant coordinates than the closest candidate illuminant coordinates; or

choosing the point of the closest candidate illuminant coordinates when the closest candidate illuminant coordinates are closer to the reference illuminant ~~that~~ than the ~~extrema~~ extremum.

10. (currently amended) A method for estimating an image ~~colorbalance~~ color-balance correction, the method comprising:

forming an illuminant set comprising data describing a plurality of candidate ~~colorbalance~~ color-balance corrections;

analyzing an image in relation to said illuminant set to determine a plurality of match scores for said plurality of candidate ~~colorbalance~~ color-balance corrections;

fitting a surface to said plurality of match scores, said surface representing ~~colorbalance~~ color-balance correction values other than said candidate ~~colorbalance~~ color-balance corrections; and

determining a point on said surface, said point corresponding to the data representing a likely ~~colorbalance~~ color-balance correction for said image.

11. (original) A method for estimating an image illuminant, the method comprising:

forming a design matrix comprising the parameters of a plurality of candidate illuminants;

computing an image histogram comprising data relating the frequency of image element color values to color values found under said candidate illuminants;

determining match scores for said plurality of candidate illuminants;

fitting a surface to said match scores, said surface representing illuminant parameter values other than said candidate illuminants;

solving for an extremum of said surface; and

choosing the coordinates of said extremum as the parameters of an estimated image illuminant.

12. (original) A system for estimating an image illuminant, the method comprising:

an illuminant set comprising data describing a plurality of candidate illuminants;

an analyzer for analyzing an image in relation to said plurality of candidate illuminants to determine a plurality of match scores for said plurality of candidate illuminants;

a fitter for fitting a surface to said plurality of match scores, said surface representing illuminant values other than said candidate illuminants; and

a processor for determining a point on said surface, said point corresponding to the data representing a likely illuminant for said image.

13. (currently amended) A computer-readable medium encoded with ~~A set of~~ computer-executable instructions for estimating an illuminant of an image, said instructions comprising the acts of:

forming an illuminant set comprising data describing a plurality of candidate illuminants;

analyzing an image in relation to said plurality of candidate illuminants to determine a plurality of match scores for said plurality of candidate illuminants;

fitting a surface to said plurality of match scores, said surface representing illuminant values other than said candidate illuminants; and

determining a point on said surface, said point corresponding to the data representing a likely illuminant for said image.

14. (new) A method for estimating an image illuminant, the method comprising:

forming a matrix of monomial basis functions in the color coordinates of each of a plurality of candidate illuminants;

analyzing an image in relation to said plurality of candidate illuminants to determine a plurality of match scores for said plurality of candidate illuminants;

fitting a surface to said plurality of match scores, said surface representing illuminant values other than said candidate illuminants; and

determining a point on said surface, said point corresponding to the data representing a likely illuminant for said image.